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COMMITTEE ON THE PEACEFUL
USES OF OUTER SPACE
Scientific and Technical Subcommittee
Twenty-eighth session

DRAFT REPORT OF THE SCIENTIFIC AND TECHNICAL SUBCOMMITTEE ON THE WORK OF ITS TWENTY-EIGHTH SESSION

Addendum

VII. MATTERS RELATING TO LIFE SCIENCES, INCLUDING SPACE MEDICINE

1. In accordance with General Assembly resolution 45/72, the Subcommittee continued its consideration of this item. The Subcommittee heard special presentations on the question by experts from the USSR and the United States, as mentioned in paragraph ... of the present report. The Subcommittee took note of working papers submitted by the USSR (A/AC.105/C.1/L.172) and the Netherlands (A/AC.105/C.1/L.177).

2. The Subcommittee noted that studies of human physiology under the microgravity conditions of space flight had led to important advances in medical knowledge in such areas as the vestibular apparatus, blood circulation, biomechanics and metabolism. It noted that products of space biotechnology, such as pharmaceuticals, could have an important impact on health care on Earth.

3. The Subcommittee noted that space technologies were demonstrating growing promise in medical applications, most notably in the global monitoring of disease and in disaster relief. Airborne and space-based remote sensing technologies could permit the formulation of predictive models for the spread of vector-borne diseases such as malaria. The recent "Telemedicine Spacebridge" linking United States and USSR medical centres via satellite enabled consultations to assist the victims of the 1988 earthquake in Armenia. In addition, research in space would advance the biomedical sciences and improve quality of life on Earth. The techniques and lessons learned from these space-based activities could contribute substantially to educational programmes in these areas all over the world. The Subcommittee

endorsed the value of space for these purposes and encouraged Member States to study further the potential future benefits of these activities, perhaps in conjunction with the World Health Organization and other relevant organizations.

4. The Subcommittee noted that space studies in life sciences and medicine had important potential benefits for all countries and that efforts should be made to promote international cooperation to enable all countries to benefit from those advances.

5. The Subcommittee recommended that the Secretariat should prepare a study of medical technology that had resulted from research in space, based on information compiled from existing sources and information submitted by Member States.

6. The Subcommittee recommended that consideration of the item be continued at its next session.

VIII. PROGRESS IN NATIONAL AND INTERNATIONAL SPACE ACTIVITIES RELATED TO THE EARTH ENVIRONMENT, IN PARTICULAR PROGRESS IN THE GEOSPHERE-BIOSPHERE (GLOBAL CHANGE) PROGRAMME

(Contained in A/AC.105/C.1/L.175/Add.1)

IX. MATTERS RELATING TO PLANETARY EXPLORATION

7. In accordance with General Assembly resolution 45/72, the Subcommittee continued its consideration of this item. The Subcommittee heard a special presentation on the question by an expert from the United States, as mentioned in paragraph ... of the present report.

8. The Subcommittee noted that three planetary exploration missions were currently underway. The Magellan spacecraft was in orbit around Venus and conducting a systematic radar mapping programme. The Galileo spacecraft was on a complex trajectory to Jupiter, where it would make detailed observations of that planet. And the Ulysses spacecraft was on its long trajectory to observe the polar regions of the Sun. The Subcommittee also noted the plans for future spacecraft to study asteroids and comets and to conduct comprehensive investigations of Mars and Saturn. It noted in particular the high degree of international cooperation in all of those investigations.

9. The Subcommittee recommended that consideration of the item be continued at its next session.

X. MATTERS RELATING TO ASTRONOMY

10. In accordance with General Assembly resolution 45/72, the Subcommittee continued its consideration of this item. The Subcommittee heard special presentations on the question by experts from Spain and the United States, as mentioned in paragraph ... of the present report.

11. The Subcommittee noted that the use of spacecraft for making astronomical observations from above the atmosphere had greatly advanced knowledge of the universe by allowing observations in all regions of the electromagnetic spectrum. It noted that with the launching of the Hubble Space Telescope, the Rosat x-ray observatory and the Gamma-1 and Granat astrophysical observatories, astronomers had powerful new tools for their investigations of the universe. The planned launches of the Gamma Ray Observatory, the Lyman Far Ultraviolet Spectroscopic Explorer (FUSE), the Radioastron satellite, the Spektr-Roentgen-Gamma observatory, the Advanced X-ray Astrophysical Facility, the Space Infra-Red Telescope Facility and the Infrared Space Observatory would open up further realms of the universe to detailed observation. The Subcommittee noted with satisfaction that all of those projects were open to broad international cooperation.

12. The Subcommittee recommended that consideration of the item be continued at its next session.

XI. THEME FIXED FOR SPECIAL ATTENTION AT THE 1991 SESSION: "APPLICATIONS OF AIRBORNE AND SATELLITE REMOTE SENSING FOR PROSPECTING MINERAL AND GROUND-WATER RESOURCES AND FOR MONITORING AND MANAGING BIOLOGICAL RESOURCES, WITH EMPHASIS ON AGRICULTURE, TAKING INTO PARTICULAR ACCOUNT THE NEEDS OF DEVELOPING COUNTRIES".

13. In accordance with General Assembly resolution 45/72, the Subcommittee paid special attention to the theme "Applications of airborne and satellite remote sensing for prospecting mineral and ground-water resources and for monitoring and managing biological resources, with emphasis on agriculture, taking into particular account the needs of developing countries". The Sub-Committee noted with satisfaction that, at its invitation, COSPAR and IAF had organized a symposium on the theme on 20 and 21 February 1991. The Subcommittee expressed appreciation to COSPAR and IAF for the very instructive symposium. The Subcommittee took note of a working paper submitted by the USSR (A/AC.105/C.1/L.173).

14. The Subcommittee took note of the important contributions of satellite remote sensing for geology, including the use of radar systems for mapping large-scale geological structures, and the use of remote sensing to reveal linear features and multispectral anomalies associated with mineral, oil and gas deposits.

15. The Subcommittee also took note of the applications of satellite remote sensing to the development and management of water resources, including the monitoring of such factors as evaporation, vegetation patterns and surface water for planning and managing irrigation systems. The Subcommittee noted the effectiveness of the use of remote sensing in locating ground water for rural water supplies.

16. The Subcommittee also noted the applications of remote sensing for monitoring crop condition, evaluating changes in cropping patterns, estimating crop yield, monitoring drought conditions, planning the

expansion of cultivated areas, preventing and reversing land degradation, and monitoring deforestation.

XII. OTHER MATTERS

A. International Space Year - 1992

17. The Subcommittee noted that the General Assembly, in its resolution 45/72, had urged Member States and international organizations to consider supporting the efforts of the United Nations in connection with International Space Year (ISY), 1992. It also took note of information on the proposed programme for the participation of the United Nations in ISY (A/AC.105/445 and Add.1 to 4) and noted that a guidebook describing the programme had been distributed to Member States. The Sub-Committee noted that 1992 would also be the tenth anniversary of UNISPACE 82.

18. The Subcommittee noted that participation of the United Nations in ISY was to be through voluntary contributions and without any impact on the regular budget of the United Nations or the existing programme of work of the Programme. It also noted that the Secretary-General had sent a note verbale to Member States inviting additional proposals and voluntary contributions from Member States in support of United Nations activities as part of International Space Year. The Subcommittee expressed its appreciation to the Member States and international organizations that had made voluntary contributions to the United Nations Programme on Space Applications for this purpose or were planning to do so. The Subcommittee urged other Member States and international organizations to consider supporting additional scientific and technical activities in cooperation with the United Nations as part of International Space Year. The Subcommittee noted that it was particularly important to increase voluntary contributions for ISY activities to be carried out through the United Nations Programme on Space Applications as the Programme was dependent on voluntary contributions for most of its activities.

19. The Subcommittee considered that the activities to be undertaken by the United Nations and the specialized agencies as part of ISY should be complementary to the activities of international organizations such as COSPAR, IAF and the Space Agency Forum for International Space Year (SAFISY).

20. The Subcommittee noted the primary focus of proposed ISY activities on the use of space technology for studying and monitoring the environment. It noted that the General Assembly had endorsed the Subcommittee's recommendation that Member States, in planning their activities for ISY, consider ways in which those activities could complement the efforts under way for the Conference on Environment and Development, also planned for 1992. The Subcommittee recommended that the Secretariat of the Conference be invited to provide the Committee on the Peaceful Uses of Outer Space with information on the preparations for that Conference.

21. The Subcommittee noted the various national and international programmes being proposed as part of International Space Year and

heard special presentations on ISY activities by an expert from Brazil and by a representative of the Space Agency Forum for International Space Year (SAFISY). The Subcommittee noted the importance of including all countries in those programmes and of planning activities that would continue beyond 1992.

22. The Subcommittee requested the Secretariat to keep the Committee and the Subcommittee informed of further developments relating to this question.

B. Space and Earth environment

23. The Subcommittee noted that the General Assembly, in resolution 45/72, had recommended that more attention be paid to all aspects related to the protection and preservation of the outer space environment, especially those potentially affecting the Earth's environment.

24. The Subcommittee also noted that the General Assembly, in resolution 45/72, had considered that it was essential that Member States pay more attention to the problem of collisions with space debris, and other aspects of space debris, and called for the continuation of national research on that question. The Subcommittee noted that research relating to space debris was being carried out by Member States. The Subcommittee took note of a working paper on the subject submitted by Germany (A/AC.105/C.1/L.170). The Subcommittee heard a special presentation on the subject by an expert from India, as mentioned in paragraph ... of the present report.

25. The Subcommittee noted that there was a need for further research concerning space debris, for the development of improved technology for monitoring space debris, and for the compilation and dissemination of data on space debris. It also noted the importance of reducing the generation of space debris and of de-orbiting spacecraft after the end of their useful lives. It further noted the importance of international cooperation in addressing these issues.

26. The Subcommittee noted that the General Assembly, in resolution 45/72, had considered that space debris could be an appropriate subject for discussion by the Committee on the Peaceful Uses of Outer Space in the future.

27. The Subcommittee agreed that, at its next session, it would consider the question of including space debris as an item on the agenda of a future session of the Subcommittee. The Subcommittee also agreed that information on national research on space debris might be provided to the Subcommittee. The Subcommittee further agreed that specialists of Member States and COSPAR and IAF might be invited to make technical presentations, on an informal basis, on the results of such research at its next session, considering that 1992 is dedicated to the international efforts for the protection of the environment.

28. Some delegations expressed the view that the question of space debris should be included on the Subcommittee's agenda at its next session, allowing for a general exchange of views and information.

Other delegations, while recognizing the importance of the subject, expressed the view that such consideration was premature until further national research on the problem of space debris had been completed.

C. Other reports

29. The Subcommittee welcomed the annual reports of ESA (A/AC.105/464), INMARSAT (A/AC.105/466), EUTELSAT (A/AC.105/467), INTELSAT (A/AC.105/480) and INTERCOSMOS (A/AC.105/481), and the preliminary version of the thirtieth report of ITU on telecommunication and the peaceful uses of outer space. The Subcommittee requested ITU, ESA, EUTELSAT, INMARSAT, INTELSAT and INTERCOSMOS to continue to report on their work.

30. The Subcommittee expressed its appreciation to COSPAR for its report on the progress of space research during the period 1989-1990 (A/AC.105/479) and to IAF for its report on highlights of space technology during 1990 (A/AC.105/476). The Subcommittee noted that these reports might be published jointly for dissemination to a wider audience.

31. The Subcommittee noted with appreciation the participation in its session of representatives from United Nations bodies, specialized agencies and permanent observers, and found the reports/statements they had made helpful in enabling the Subcommittee to fulfil its role as focal point for international cooperation.

D. Review of the future role and work of the Scientific and Technical Subcommittee

32. The Subcommittee recommended that the agenda of its twenty-ninth session include the following priority items:

(a) Consideration of the United Nations Programme on Space Applications and the coordination of space activities within the United Nations system;

(b) Implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE 82);

(c) Matters relating to remote sensing of the Earth by satellites including, inter alia, applications for developing countries;

(d) The use of nuclear power sources in outer space.

33. The Subcommittee also recommended that the agenda of the twenty-ninth session include the following items:

(a) Questions relating to space transportation systems and their implications for future activities in space;

(b) Examination of the physical nature and technical attributes of the geostationary orbit; examination of its utilization and

applications, including, inter alia, in the field of space communications, as well as other questions relating to space communications developments, taking particular account of the needs and interests of developing countries;

(c) Matters relating to life sciences, including space medicine;

(d) Progress in national and international space activities related to the Earth environment, in particular progress in the geosphere-biosphere (global change) programme;

(e) Matters relating to planetary exploration;

(f) Matters relating to astronomy;

(g) The theme fixed for special attention at the 1992 session of the Scientific and Technical Subcommittee: "Space technology and the protection of the Earth's environment: Development of endogenous capabilities, in particular in the developing countries and in the context of International Space Year".

34. The Subcommittee recommended that, regarding agenda item (d) in paragraph 29 above, COSPAR and IAF should be invited to arrange a special presentation on progress in the geosphere-biosphere programme. The Subcommittee further recommended that, regarding agenda item (g) in paragraph 29 above, COSPAR and IAF should be invited to arrange a symposium, with as wide a participation as possible, to be held during the first week of the Subcommittee's session, to complement discussions within the Subcommittee on the special theme.

35. Some delegations expressed the view that the task of the Subcommittee was to discuss policies and guidelines for international cooperation in space activities and to provide agreed technical parameters as a contribution to the development of international space law. While recognizing the significance of the scientific and technical presentations to the Sub-Committee, they expressed the view that the role of the Subcommittee as an intergovernmental body should be strengthened and enhanced and that the presentations should not interfere with its substantive work, which should have priority over such presentations.

36. With regard to the dates for the twenty-ninth session, the Subcommittee recommended that its session be scheduled from 18 to 28 February 1992.